



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,792	12/28/2001	Takashi Amano	217878US2S	3081

22850 7590 09/17/2003

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

CHEN, SHIH CHAO

ART UNIT	PAPER NUMBER
----------	--------------

2821

DATE MAILED: 09/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,792

Applicant(s)

AMANO ET AL.

Examiner

Shih-Chao Chen

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,5 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,4,6-8 and 10-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 20 February 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. The indicated allowability of claims 1, 4, 6-8, and 10-16 is withdrawn in view of the newly discovered reference(s) to Scordilis (WO 00/30208). Rejections based on the newly cited reference(s) follow.

Information Disclosure Statement

2. The information disclosure statement (IDS) filed on June 06, 2003 has been considered.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4, 6-8, 10-13, 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Scordilis (WO 00/30208).

Regarding claim 1, Scordilis teaches in figures 1-13 an antenna structure [1] in a mobile radio apparatus having a holding unit [62] configured to hold the antenna structure [1] and a radio unit [31] configured to transmit and receive a radio signal, the antenna structure [1] comprising: a flexible substrate [2] mounted within the holding unit [62]; an antenna pattern [4] formed on the flexible substrate [2]; a matching circuit element [3] (See page 10, lines 24-26) formed on the flexible substrate [2] and configured to substantially match the impedances of the antenna pattern [4] and the radio unit [31]; and a capacitive coupling element [32] (See page 10, line 1) formed on

the flexible substrate [2] and configured to couple the antenna pattern [4] with the matching circuit element [3] by a capacitive coupling (See Figure 3a-3b).

Regarding claim 4, Scordilis teaches in figures 1-13 an antenna structure [1] arranged in a mobile radio apparatus having a holding unit [62] configured to hold the antenna structure [1] and a radio unit [31] configured to transmit and receive a radio signal, the antenna structure [1] comprising: a first antenna element [9] configured to extend substantially linearly (See Figure 7-8); an antenna supporting unit [6] configured to support the first antenna element [9], arranged within the holding unit [62]; a flexible substrate [2] mounted within the holding unit [62] and arranged around the first antenna element [9]; a second antenna pattern [4] formed on the flexible substrate [2]; a matching circuit [3] (See Figure 7-8) formed on the flexible substrate [2] configured to match the impedances of the first antenna element [9] and the second antenna pattern [4]; and a capacitive coupling element [32] (See Figure 8) formed on the flexible substrate [2] and configured to selectively couple the first antenna element [9] and the second antenna pattern [4] with the matching circuit [3] by a capacitive coupling (See Figure 8).

Regarding claim 6, Scordilis teaches in figures 1-13 the antenna structure according to claim 4 wherein the capacitive coupling element [32] selectively couples the first antenna element [9] with the matching circuit [3] when the first antenna element [9] is withdrawn from the holding unit [62], and releases the capacitive coupling between the first antenna element [9] and the matching circuit [3] when the first antenna [9] is housed in the holding unit [62].

Regarding claim 7, Scordilis teaches in figures 1-13 the antenna structure according to claim 4, wherein the capacitive coupling element [32] selectively couples the second antenna pattern [4] with the matching circuit [32] when the first antenna element [9] is housed in the holding unit.

Regarding claim 8, Scordilis teaches in figures 1-13 a mobile radio apparatus, comprising: a first antenna element [9] configured to extend substantially linearly (See Figure 7-8); a body (i.e. the telephone) including a housing unit [62] configured to house the first antenna element [9]; an antenna supporting unit [6] configured to support the first antenna element [9], housed in the housing unit; a flexible substrate [2] mounted within the housing unit [62] and arranged around the first antenna element [9]; a second antenna pattern [4] formed on the flexible substrate [2]; a matching circuit element [3] (See Figure 7-8) formed on the flexible substrate [2] configured to substantially match the impedance of the first antenna element [9] with the impedance of the second antenna pattern [4]; and a capacitive coupling element [32] (See Figure 8) formed on the flexible substrate [2] configured to selectively couple the first antenna element [9] and the second antenna pattern [4] with the matching circuit element [3] by a capacitive coupling.

Regarding claim 10, Scordilis teaches in figures 1-13 the mobile radio apparatus according to claim 8, wherein the capacitive coupling element [32] selectively couples the first antenna element [9] with the matching circuit element [3] when the first antenna element [9] is withdrawn from the body, and releases the capacitive coupling between

Art Unit: 2821

the first antenna element [9] and the matching circuit element [3] when the first antenna element [9] is housed in the body.

Regarding claim 11, Scordilis teaches in figures 1-13 the mobile radio apparatus according to claim 8, wherein the capacitive coupling element [32] selectively couples the second antenna pattern [4] with the matching circuit element [3] when the first antenna element [9] is housed in the body.

Regarding claim 12, Scordilis teaches in figures 1-13 the mobile radio apparatus according to claim 8, wherein the body (i.e. the telephone) has front and rear sides, and a loud speaker configured to reproduce a sound from the front side and the flexible substrate [2] is arranged on the rear side relative to an antenna axis.

Regarding claim 13, Scordilis teaches in figures 1-13 a mobile radio apparatus, comprising: a flexible substrate [2]; a body (i.e. the telephone) including a housing unit [62] configured to house the flexible substrate [2], the housing unit [62] protruding from the body along a first axis; a first antenna pattern [4] formed on the flexible substrate [2], the first antenna pattern [4] extending in a meandering fashion along a second axis, and the first and second axes forming an angle falling within a range of between 45 degree and 90 degree; a radio unit section [31] housed in the body and configured to receive and transmit a radio signal through the first antenna pattern [4]; a matching circuit element [3] (See page 10, lines 24-26) formed on the flexible substrate [2] and configured to substantially match the impedance of the first antenna pattern [4] with the impedance of the radio unit; and a capacitive coupling element [32] (See page 10, line

Art Unit: 2821

1) formed on the flexible substrate [2] and configured to couple the first antenna pattern [4] with the matching circuit element [3].

Regarding claim 15, Scordilis teaches in figures 1-13 the mobile radio apparatus according to claim 13, further comprising: a second antenna element [9] configured to extend substantially linearly; and an antenna supporting unit [6] configured to support the second antenna element [9], arranged in the housing unit, and configured to permit the second antenna element [9] to be withdrawn from the body of the radio apparatus along the first axis and returned into the body along the first axis, the flexible substrate [2] being arranged around the second antenna element [9] withdrawn from the body.

Regarding claim 16, Scordilis teaches in figures 1-13 an antenna structure [1] in a mobile radio apparatus having a holding unit [62] configured to hold the antenna structure [1] and a radio unit [31] for transmitting and receiving a radio signal, the antenna structure [1] comprising: a first flexible substrate [2] mounted within the holding unit [62]; an antenna pattern [4] formed on the flexible substrate [2] (i.e. the first flexible substrate); a matching circuit element [3] (See page 10, lines 24-27) formed on the first flexible substrate [2] and configured to substantially match the impedances of the antenna pattern [4] with the impedance of the radio unit [31]; a capacitive coupling element [32] (See page 10, line 1) configured to couple the antenna pattern [4] with the matching circuit element [3] by a capacitive coupling (See Figure 3a-3b); and a second flexible substrate [5] within the holding unit [62], the matching circuit element [33] (See page 10, lines 24-27) being formed on the second flexible substrate [5] and the

capacitive coupling element [32] being formed between the first and second flexible substrates [3, 5].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scordilis (Cited above).

It would have been an obvious matter of design choice to have the angle is substantially equal to 60 degree, since such a modification would have involved a mere change in degree of the first and second reference axes. A change in degree is generally recognized as being within the level ordinary skill in the art.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (703) 306-2721. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

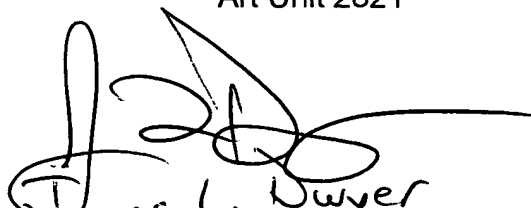
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (703) 308-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-5841 for After Final communications.

Art Unit: 2821

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Shih-Chao Chen
Examiner
Art Unit 2821

SXC
August 27, 2003



James L. Dwyer
Director TC 2800